

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 December 2003 (18.12.2003)

PCT

(10) International Publication Number
WO 03/105431 A1

(51) International Patent Classification⁷: **H04L 27/01**

(21) International Application Number: PCT/US03/18129

(22) International Filing Date: 6 June 2003 (06.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/387,303	7 June 2002 (07.06.2002)	US
60/387,098	7 June 2002 (07.06.2002)	US
60/398,860	25 July 2002 (25.07.2002)	US
60/403,874	16 August 2002 (16.08.2002)	US

(71) Applicant (for all designated States except US): **TOKYO ELECTRON LIMITED** [JP/JP]; TBS Broadcast Center, 3-6 Akasaka 5-chome, Minato-ku, Tokyo 107-8481 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **TSATSANIS,**

Michail [GR/US]; 103 Baseo De Cristobal, San Clemente, CA 92672 (US). **GU, Ming** [CN/US]; 34B Eaten Crest Drive, Eaton Town, NJ 07724 (US). **GUDMUNDSSON, Thorkell** [IS/US]; 5301 Rafton Drive, San Jose, CA 95124 (US).

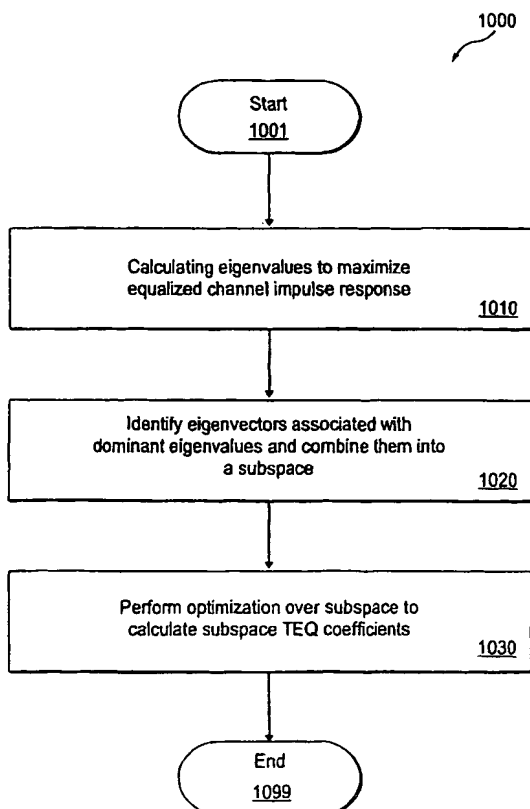
(74) Agent: **DUTTA, Sanjeet, K.**; Blakely, Sokoloff, Taylor & Zafman LLP, 12400 Wilshire Boulevard, Seventh Floor, Los Angeles, CA 90025 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: A METHOD AND SYSTEM FOR PROVIDING A TIME EQUALIZER FOR MULTILINE TRANSMISSION IN COMMUNICATION SYSTEMS



(57) Abstract: A method and system for multiline transmission in communications systems are described. Eigenvalues are calculated to maximize equalized channel impulse response (1010). Eigenvectors associated with dominant eigenvalues are identified (1020). The eigenvectors are combined into a subspace. Optimization is performed over the subspace to calculate subspace time equalizer coefficients (1030).